

RESULTS: At a threshold of \$100,000/QALY, the CEAC for PSA1 showed a 97% probability that TxB is cost-effective versus TxA, corresponding results for PSA2, and PSA3, were 54%, and 58%, respectively. **CONCLUSIONS:** Failure to consider uncertainties owing to PFS/OS data in oncology models, and to the ensuing calibration procedures, can lead to under-representation of uncertainty in cost-effectiveness results.

PCN132

MODELING THE LIFETIME EFFECTIVENESS OF DENOSUMAB AND ZOLEDRONIC ACID (ZA) IN THE PREVENTION OF SKELETAL RELATED EVENTS (SRE) IN PATIENTS WITH BONE METASTASES FROM SOLID TUMORS

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OBJECTIVES: Because bone metastases can cause costly SREs, lifetime estimates of SREs prevented can help payers compare the effectiveness of treatment options. Denosumab was recently approved in the US for SRE prevention in patients with bone metastases from solid tumors. This study presents a model for SRE predictions based on phase III trials comparing denosumab and ZA in different tumors. **METHODS:** A three-state Markov model (On Treatment, Off Treatment, and Dead) was developed using constant SRE incidence rates for each tumor type and treatment. Results were compared between the model and trial for the 3-year trial duration and extrapolated to the patient lifetime. Lifetime SREs were estimated for the US population based on the estimated annual number of new patients with bone metastases. Mortality rates were identical between treatments and estimated using trial-based generalized gamma distributions. Lifetime treatment was assumed. **RESULTS:** The number of all SREs observed (rate per patient-year) for denosumab and ZA were 660 (0.488) and 853 (0.631) for breast cancer, 780 (0.746) and 943 (0.947) for prostate cancer, and 469 (0.588) and 535 (0.690) for other solid tumors. Comparison between trial results and model projections over the trial time horizon resulted in differences in SRE counts ranging from -1.5% to 2.0%. Over the expected patient lifetime, estimated SREs per patient were 1.80 and 2.32 (denosumab and ZA) for breast cancer, 1.65 and 2.08 for prostate cancer, and 1.36 and 1.60 for other solid tumors. In annual incident cohorts of patients with bone metastases, the model projects 43,765 and 56,408 (denosumab and ZA) lifetime SREs in breast cancer and 30,429 and 38,359 lifetime SREs in prostate cancer. **CONCLUSIONS:** The model output is consistent with the clinical trial evidence, and can be used to compare estimates of the predicted lifetime SREs for denosumab and ZA.

PCN133

ESTIMATING THE EPIDEMIOLOGY OF LATE-STAGE CANCERS – A MATHEMATICAL APPROACH

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OBJECTIVES: Accurate estimates of cancer epidemiology are fundamental to quantifying the economic burden of cancer as well as supporting a variety of researches in public health and commercial activities. However, the complete prevalence and incidence of late-stage cancers is difficult to obtain as most surveillance programs report cases at initial diagnosis, so recurrent cases, by definition are not captured. The objective of this study is to present a simple mathematical approach to estimate the epidemiology of late-stage cancers. **METHODS:** We developed an Excel-based tool to estimate the epidemiology of late-stage cancers with minimal historic information. Data needed include annual national or local cancer-related mortality rates, late-stage cancer survival rates and population size. Our approach starts with the patients who died from the specific cancer and tracks back to estimate the incidence and prevalence. The approach assumes most deaths attributed to the cancer are late-stage disease. We tested our approach by estimating the incidence and prevalence of metastatic breast cancer and metastatic melanoma with historic mortality and survival data from the National Cancer Institute Surveillance, Epidemiology and End Results (SEER) Program. **RESULTS:** We estimated that the 2007 US incidence of stage IV breast cancer and melanoma were approximately 32.4 per 100,000 women and 2.7 per 100,000 persons, respectively. These results corresponded to a total of 49,505 patients (10,426 newly diagnosed and 39,079 recurrent cases) for stage IV breast cancer and total of 8,279 patients (3,690 newly diagnosed and 4,589 recurrent cases) for late-stage melanoma. Results are also available by age and gender groups. **CONCLUSIONS:** Comparison of results using this epidemiology tool with estimates from databases and chart review studies demonstrated that our approach is reasonably accurate in its estimation. This approach could be adopted for uncommon cancers or regions with scarce data.

PCN134

HUMANISTIC CONSEQUENCES OF PREVENTABLE BLADDER TUMOR RECURRENCES IN NON-MUSCLE INVASIVE BLADDER CANCER (NMIBC)

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OBJECTIVES: Bladder cancer is a common malignancy with ~70,500 incident cases per year in the US; 70% present as non-muscle invasive bladder cancer (NMIBC). Perioperative instillation of chemotherapy after transurethral resection of the bladder (TURBT) can reduce the risk of recurrence. Our objective was to estimate the loss of quality-adjusted life years (QALY) due to unnecessary recurrences for patients not receiving perioperative chemotherapy (PC). **METHODS:** A decision-tree model estimated the loss of QALYs following recurrence in NMIBC patients not receiving PC. Therapy utilization rates were obtained from a chart review study of 1010 NMIBC patients treated by 259 US urologists. In this sample, 17% of patients received PC after the initial TURBT and 27% received perioperative therapy after the first recurrence. In addition, 48.6% received induction therapy with BCG (85%) or

mitomycin-C (MMC, 15%) after the first recurrence. The estimated 2-year recurrence rates in NMIBC patients were 53% with TURBT alone and 36% with TURBT and PC. QALY estimates were obtained from literature with disutilities of -0.10 for each resection, -0.026 for BCG therapy, and an assumed -0.01 for MMC therapy. **RESULTS:** According to estimates, 49,350 new cases of NMIBC are expected in the US in 2010; 100% utilization of PC would result in avoidance of 6,962 bladder tumor recurrences. The model estimates that 911 QALYs are lost over a 2-year time period from preventable recurrences. This equates to 0.02 QALYs for all patients undergoing TURBT. An estimate of disutility at the first recurrence indicates a gain of nearly 47 quality-adjusted days per avoidable recurrence and ~8 days per new NMIBC case if intravesical PC was utilized. **CONCLUSIONS:** A substantial number of QALYs are lost each year due to underuse of intravesical PC. Increased use of PC could reduce the humanistic burden of unnecessary recurrences in NMIBC.

PCN135

ECONOMIC CONSEQUENCES OF PREVENTABLE BLADDER TUMOR RECURRENCES IN NON-MUSCLE INVASIVE BLADDER CANCER

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OBJECTIVES: In 2010, an estimated 70,500 new cases of bladder cancer will be diagnosed in the US; 70% will present as non-muscle invasive bladder cancer (NMIBC). The instillation of intravesical chemotherapy after transurethral resection of bladder tumor (TURBT) can reduce the risk of tumor recurrence. The objective of this study is to estimate the economic consequences associated with unnecessary recurrences in patients deprived of perioperative chemotherapy (PC). **METHODS:** A decision-tree model estimated the economic consequences of recurrence in patients not receiving PC. Two sources were used to estimate rates for the model because neither data source had both of the rates required; 1010 NMIBC patient charts (from 259 US urologists) estimated therapy utilization, and recurrence rates were obtained from 502 patients enrolled in a trial by Tolley, et al. randomizing patients to mitomycin C (MMC) versus no PC. Costs were estimated using prevailing Medicare reimbursement rates for TURBT (\$1,982), BCG induction therapy (\$201/instillation), MMC induction therapy (\$252/instillation) and perioperative MMC (\$166/instillation). **RESULTS:** Within the cohort, 17% of patients received PC after the initial TURBT. The overall recurrence rate was 39%. At first recurrence, 27% received PC and 48.6% received induction therapy with BCG (85%) or MMC (15%). Data from the randomized trial indicate that at 2 years, 36% of patients receiving PC recur compared with 53% receiving TURBT alone. Population estimates predict 49,350 new cases of NMIBC in the US in 2010. The model demonstrated prevention of 6962 bladder recurrences with perioperative MMC after initial TURBT, with an estimated savings of \$2608 per patient. This translates into aggregate savings of \$18.1 million to the US health care system over two years. **CONCLUSIONS:** Greater use of PC after TURBT can reduce economic loss related to preventable bladder tumor recurrences with substantial savings to the health care system.

PCN136

ESTIMATING UTILITIES IN CANCER: A COMPARISON OF EQ-5D AND FACT-BASED ALGORITHMS

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OBJECTIVES: Although utility-based algorithms have been developed for the Functional Assessment of Cancer Therapy (FACT), their properties are not well-known compared to more widely used utility measures like the EQ-5D. The objective of this study was to compare the properties and relationships between EQ-5D and FACT-based health utility scores in cancer patients. **METHODS:** A retrospective analysis was conducted on cross-sectional data collected from 534 cancer patients who completed both FACT-G and EQ-5D. Properties of scores from 3 FACT-based and 2 EQ-5D based algorithms were examined. Known groups comparisons were based on physician and patient-rated ECOG performance status. Relative efficiency (RE) of the utility algorithms was examined using ratios of F-statistics. **RESULTS:** Mean scores for the overall cohort were lowest using Kind and Macran's FACT UK societal (0.55, SD 0.09), followed by Dolan's EQ-5D UK societal (0.72, SD 0.23), Cheung et al.'s FACT mapped to EQ-5D (0.74, SD 0.11), Shaw et al.'s EQ-5D US societal (0.79, SD 0.15), and highest using Dobrez et al.'s FACT US patient algorithm (0.83, SD 0.08). When stratified by ECOG status, the largest differences in mean scores were generally observed for EQ-5D UK societal scores and smallest for the FACT-based US patient scores; however, FACT UK societal scores had twice the statistical efficiency of the other algorithms. **CONCLUSIONS:** We found important differences in utilities scores estimated by each algorithm. The FACT-based algorithms tended to underestimate the QALY benefit compared to the EQ-5D, and appeared to driven by a more limited range of scale.

PCN137

COMPREHENSIVE REVIEW OF MANAGEMENT EFFICIENCY STRATEGIES AMONG ONCOLOGY PRACTICES: EXISTING EVIDENCE AND OPPORTUNITIES FOR FUTURE RESEARCH

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OBJECTIVES: Faced with decreasing reimbursement costs, greater patient volumes, higher operating costs and pressure to adopt quality standards, community oncology practices and infusion centers operate in an increasingly challenging environment. This study sought to assess the practice efficiency techniques cur-